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GARDENING INSTRUCTIONS FOR CLUB MEMBERS



OFFICE OF EXTENSION WORK SOUTH
STATES RELATIONS SERVICE

WASHINGTON, D. C., JANUARY 22, 1919

ENROLLED MEMBERS of the Girls' Canning Clubs of the Southern States are required to grow a tenth-acre garden. Sixty-one thousand five hundred girls were enrolled as club members in 1917, and the number was greatly increased in 1918. In addition to these members undertaking the four-year program of work, there is a large number of junior club members who follow these directions, on a one-twentieth acre plot.

Since many of these girls have had no previous experience in gardening, they ask for definite instruction in caring for their gardens. This circular has been prepared to meet this need and is the first of the instruction letters sent to all club members to be used by them during their entire year's work. It contains information on selecting the location of the garden plot, and instructions in growing tomatoes, beans, and okra in the tenth-acre garden.

Farmers' Bulletin 934, Home Gardening in the South, gives further information on gardening.

GARDENING INSTRUCTIONS FOR CLUB MEMBERS.*

TO CANNING CLUB MEMBERS:

This circular contains rules for beginning work, instructions for selecting the tenth-acre garden plot and preparation of the soil, setting the plants, and cultivating the garden. Later you will be sent a circular on tomato diseases and insect pests.

Please keep these circulars; read the instructions carefully and refer to them often. You will thus be sure that you are following directions.

Your county agent will give you a daily record book and teach you how to keep it. Begin writing in this book as soon as you do your first work and continue making notes each time you do any work. Write to your county home-demonstration agent if you need further information.

RULES FOR BEGINNING WORK.

1. Secure a tenth acre of ground; this may be 132 feet long and 33 feet wide, or any other convenient width and length, provided it contains one-tenth acre, or 4,356 square feet.

2. When you have finished your work next summer we shall ask you to write a history of it, so begin at once to record, (a) the date, (b) number of hours, (c) kind of work, and (d) cost.

3. Keep a record of your expenses, charging 10 cents an hour for your own work. For all hired work and supplies charge the actual cost. If the cultivating is done by equipment owned on the farm, charge 5 cents an hour for each horse used.

Estimate the value of stable manure at \$2 per ton, allowing a good two-horse load for a ton. Charge yourself \$1 for the rent of your tenth acre.

SELECTION AND PREPARATION OF SOIL FOR GROWING TOMATOES, BEANS, AND OKRA IN THE CLUB GARDEN.

When our great-grandmothers were girls tomatoes were called "love apples," and one or two plants were grown in the garden or flower beds on account of their bright red fruits. No one thought of eating them, for they were considered poisonous. When after a time it was found that they were not poisonous, people began to eat them and they soon became one of the standard garden vegetables.

* Acknowledgment is made to Mr. W. R. Beattie of the Bureau of Plant Industry for his aid in the preparation of this circular.

The tomato is closely related to the potato, and while the actual food value of the tomato is not so great as that of the potato, it has certain qualities that make it one of the most desirable of our garden crops. Tomatoes are so universally grown and can be used in so many ways that they are especially adapted to club work.

SELECTING THE LOCATION AND SOIL FOR THE TOMATO PLOT.

The first thing to consider when selecting the required one-tenth of an acre for the club tomato plot will be the location and kind of



FIG. 1.—County agent assisting a club member in selecting the location and soil for her plot.

soil (figs. 1 and 2). If early tomatoes are wanted there are certain requirements of location that must be carefully considered. A location near the top of a hill where the ground is nearly level but slopes a little toward the south or southeast will be safer from frost than the lower land and will get the full benefit of the sunshine. If there is a pine thicket on the north to break the force of the winds so much the better. The

land should drain well but not be so steep as to wash. While the location is being sought the character of the soil must be kept in mind. Good tomato land is neither extremely rich nor very poor, but just such land as would grow extra good corn or cotton. Land that was manured heavily the previous year will generally grow good tomatoes. Do not select land where tomatoes were grown last year, as the diseases that attack the plants are frequently carried over winter in the soil. Avoid land where cotton has died from the effects of disease.

FALL PLOWING THE TOMATO PLOT.

Plow the soil 6 to 8 inches deep in the fall or early winter and turn under two to three large wagonloads of partly rotted stable or yard manure on the one-tenth acre plot of ground. Do not harrow or drag the soil after plowing, but leave it just as turned over until time

to prepare it in the early springtime. By this method the winter rains will soak into the soil and the manure will decay rapidly. In case the land was manured heavily the previous season only about one-half as much manure should be used. Corn stalks, cotton stalks, or any other coarse material should not be plowed under, as they will not decay by the time the tomatoes are planted.

SECURING SEED AND STARTING EARLY PLANTS.

With the tomato plot located, the land manured and fall-plowed, the next step will be to arrange for seed and for starting the plants. The first problem will be the variety, or varieties, to plant. There are about six or eight standard varieties of tomatoes in general use; two varieties, one extra early and one standard, will be sufficient on one-tenth acre. The variety known as Bonnie Best gives good results for early and Improved Stone for the main crop and for canning. Plant standard varieties and do not be misled into selecting some of the highly advertised or extra large kinds.



FIG. 2.—County agent assisting girls in measuring off the one-tenth acre plot.

A 5-cent packet of seed of an extra early variety and a small package of Improved Stone, or some other standard variety, will be enough to produce the plants required to set one-tenth acre. Get the very best seed obtainable and remember that the best is cheapest in the end. If some dealer in your town or city does not make a specialty of ordering a supply of high-grade seed, send to a seedsman who makes a business of supplying the best tomato seed to growers.

Experience has demonstrated that all tomatoes give best results in the Southern States when brought into bearing early and that it is necessary to start the plants in the house, in a hotbed or in a cold

frame, long before it is warm enough for them in the open (figs. 3, 4, 5, and 6). About 650 plants are required to set one-tenth of an acre the usual planting distances, and in order to have that number



FIG. 3.—Packing the soil down firmly to within one-half inch of top of box.

of good, thrifty plants it is necessary to grow at least 800 or even 1,000. A shallow box 3 inches deep, 14 inches wide, and long enough so that it will just fit in an ordinary window will answer as a seed bed in which to start enough plants for one-tenth acre. Two or three holes should be bored in the bottom of the box for drainage and a few small stones laid over these holes before the soil is put in. A fine sandy loam soil is best for starting the seed, and, if possible, it should be sifted to remove all lumps. Fill

the box level full with soil and firm it with a small board or a block of wood, pressing the surface down to about one-half inch below the top of the box. Lay off small rows every 2 inches across the box, using the edge of a thin board or edge of a ruler to make the impressions. Sow the seed rather thinly, about 80 to 100 seeds in each row, and cover one-fourth to one-half inch deep.

The seed box should now be placed in a south window and watered carefully at least once a day and oftener if necessary to keep the soil from becoming dry. A piece of gunny sack or old cloth can be cut to fit inside the box, soaked with water and spread over the surface of the soil for a couple of days until the seeds begin to sprout. This will prevent the surface soil drying so quickly. After the plants appear the box should be turned every day to prevent them drawing toward the light and growing crooked. Where three or four club members can work together a hotbed should be provided, except in the extreme South, where a cold frame will be sufficient.

When the little plants are about $1\frac{1}{2}$ or 2 inches in height and

have formed one or two leaves in addition to their two seed leaves they should be transplanted to other boxes or to a cold frame giving them at least $2\frac{1}{2}$ inches of space in each direction. The transplanting soil should be fine and mellow, with a little rotted manure and a very small quantity of fertilizer mixed with it. Great care is necessary in the use of commercial fertilizers in the cold frame or plant bed on account of the danger of overdoing the matter and injuring the plants. If at any time the plants are not making sufficient growth in the plant bed they can be hurried along by watering them with a weak solution of liquid manure or by adding a level teaspoonful of nitrate of soda to a



FIG. 4.—Laying off the rows with a thin board.

gallon of water and using this for watering them. Neither the liquid manure nor the nitrate of soda solution should be used oftener than once each week, preferably not more than twice or at most three times, during the period that the plants are in the plant bed. Extra fine tomato plants can be grown by transplanting them into 4-inch flowerpots, strawberry boxes, or paper bands. If grown in pots they are simply knocked out of the pots and planted in the ground, with the ball of earth adhering to their roots. Where grown in berry boxes or in paper bands these can be cut away with a knife at the time the plants are set.

MAKING A HOTBED.

For the benefit of club members who may not have had experience in the making or care of a hotbed (fig. 7), the following suggestions are given: Fresh horse or mule manure is used as a source of heat, and a supply should be accumulated for a week or two before making the bed.

Select a well-drained location on the south side of a building or tight fence where the hotbed will be protected from cold winds. Dig a pit 12 to 18 inches deep and the size of the framework of the hotbed.



FIG. 5.—Sowing the seed carefully.

Throw in the manure and pack by tramping until the pit is filled. The framework should be made the size to accommodate one, two, or more standard 3 by 6 foot hotbed sash. By setting the plants $2\frac{1}{2}$ inches apart a bed 6 by 6 feet in size and requiring two sash will hold enough plants to set one-tenth of an acre. A bed 6 feet wide and 9 feet long and requiring three standard sash is a better size, as it gives plenty of room to grow good,

stocky plants. The bed should be 18 to 24 inches high at the back and 10 or 12 inches at the front. The slope should be toward the south.

The manure should be covered with about 4 or 5 inches of good garden loam and it will begin to heat within a day or two. It is a good plan to delay sowing the seeds two or three days after making the bed, as it is liable to become very hot at first and the seeds should not be put in until the temperature has dropped a little. If no sash are available the bed may be covered with heavy muslin, commonly called domestic, sewed together in the form of a sheet (fig. 8). One edge of this sheet should be tacked to the upper side of the bed and the opposite edge to a strip of wood that will serve as a roller upon which to roll it up during warm and bright days. The sheet must be securely tied down at night and on windy days to keep it from blowing off.

During cold nights a layer of fine hay, pine needles, or Spanish moss should be thrown over the muslin cover or the glass to help keep the bed warm. The bed should also be banked all around with soil or manure to retain the heat.

During bright days the bed will heat very quickly and it will be necessary to ventilate by rolling up the sheet or raising the sash on the opposite side from the wind. Toward evening close the bed in

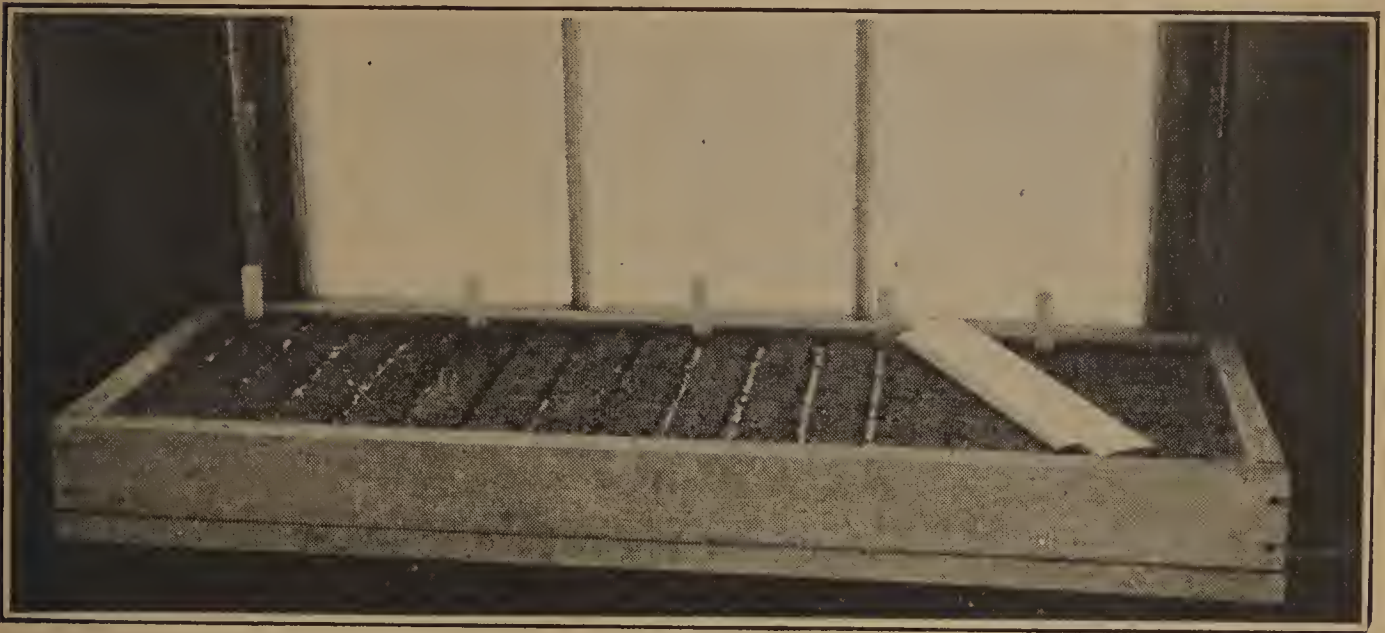


FIG. 6.—Close view of seed box in window before covering the seeds.

order to get it warm before night. Water the bed in the morning only on bright days, as watering in the evening or on cloudy days will increase the danger of freezing and “damping off.” Ventilate the bed after watering in order to dry off the plants.

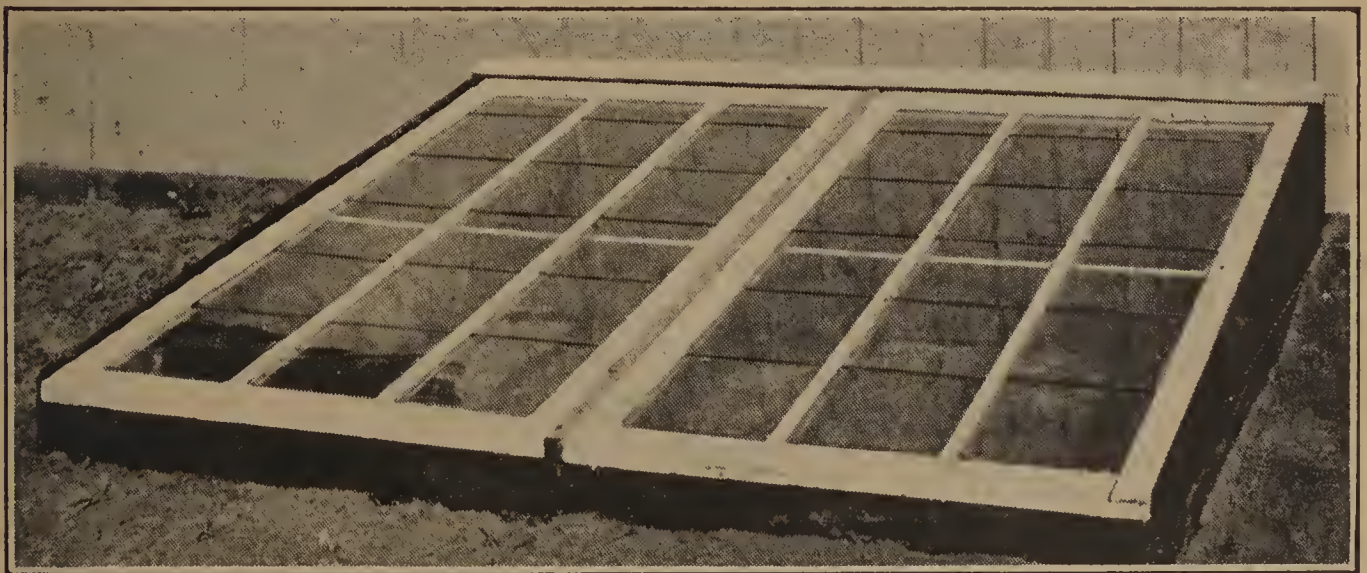


FIG. 7.—A hotbed covered with sash.

In the extreme southern part of the country, where there is very little freezing weather at the time the tomato plants are being started, a cloth covered cold frame without any means of heating will be sufficient, especially if the seed is sown in a box in the house and the small plants transplanted to the cold frame. Where the weather is more severe it may be desirable to make a small hotbed.

Before the plants are set in the open ground, they must be hardened and made strong and stocky (fig. 9) by exposing them more and more to outside conditions. This hardening process must be done gradually

to prevent any serious check in their growth, and is accomplished by leaving the covering of cloth or sash off during warm days and finally leaving it off at night when the weather will permit. The covering should be kept in readiness to be put on at any time that there is danger of frost.



FIG. 8.—A hotbed with cloth covering.

FERTILIZERS.

Even where manure is used a moderate application of commercial fertilizer should be used. The quantity, however, will depend upon the natural fertility of the soil and the amount of manure used. Equal parts of cottonseed meal and 16 per cent acid phosphate, or a ready mixed fertilizer having an analysis of 8:2:1, may be used at the rate of 100 to 200 pounds on a tenth of an acre. If nitrate of soda can be secured 10 to 20 pounds may be added to give the plants a quick start after they are set. The fertilizer is sometimes applied broadcast and harrowed into the soil, but as a rule a furrow is opened where the row is to be, the fertilizer is put in this furrow and well mixed with the soil with a cultivator. A broad, flat bed is then thrown over the row and allowed to settle a few days before setting out the plants. This permits the fertilizer to become absorbed by the soil and to be in readiness to act quickly when the plants need it.

The tray in which the seeds were started can be used for carrying the plants from the cold frame to the tenth-acre plot. If two girls are working together a couple of strips can be nailed to the sides of the tray to form handles at both ends for carrying it.

PREPARATION OF THE LAND FOR PLANTING.

Where the land was plowed in the fall, replot it in the spring, then apply the fertilizers as already suggested. Harrow and disk the soil as many times as necessary to put it in the very best of condition.

and if the soil is lumpy, use a drag or roller to crush the clods. Where the land is well drained and the soil reasonably deep, level cultivation will be most satisfactory, but if there is any doubt about drainage



FIG. 9.—A healthy, stocky tomato plant ready for transplanting.

the plants should be set on low, broad ridges. Never use narrow, peaked ridges, as these dry out too quickly. Thorough preparation of the soil before planting is very important and saves extra work during the cultivation period.

DISTANCES TO PLANT.

Careful experiment has demonstrated that the best method of growing tomatoes in the South is by pruning to one or two stems and tying them to stakes. This makes it possible to grow a much

larger number of plants on a tenth acre than if the plants were allowed to spread upon the ground. The rows should be spaced 3 to 3½ feet apart and the plants set 18 inches to 2 feet in the row. Before lifting the plants from the plant bed the soil in which they are growing should be thoroughly soaked in order to make it adhere to the roots.



FIG. 10.—A homemade kneeling pad and apron for tools.

Where the plants are grown in pots, berry boxes, or paper bands, the whole mass of soil should adhere to the plant when it is set out. In lifting the plants from the bed, a blunt trowel or stiff knife is used to cut between the rows of plants so that they may be lifted with a square block of soil around their roots. Use a tray; shallow box, or kneeling pad for handling plants (fig. 10).

The plants should not be set in the open ground until danger of frost is past. A good method in setting them is to open a furrow with a small turnplow or large single shovel and set them in this

furrow. If the soil is dry, pour about a quart of water around each plant. As soon as the water has soaked away, pull some dry soil around the plants. The space between the rows should be cultivated just as soon as the tenth-acre plot has been planted. This will loosen up the soil where it has been tramped and work it around the plants.

CULTIVATION.

Many persons think that crops are cultivated mainly to keep down weeds. While it is necessary to keep our crops clear of weeds, it is just as important that we stir the soil to let the air get to the roots of the plants. The tomatoes should be given horse cultivation at least once a week if the soil is dry enough, and the plants should be hoed following each cultivation. If a horse is not available, use a hand cultivator and thoroughly stir the ground.

The surface of the soil should be stirred just as soon as possible after hard beating rains. When the weather is extremely dry weekly shallow cultivations will help to retain the moisture and keep the plants growing. Where the tomatoes are trained to stakes the cultivation should continue up to the time that the first fruit is being gathered, although the cultivator should not be run quite so close to the plants toward the last. Where the tomatoes are not trained to stakes but are allowed to run on the ground, cultivation should continue as long as there is room enough to get through the rows with the cultivator.

STAKING AND TYING

The stakes to which the tomatoes are to be trained should be provided in advance and one driven alongside of each plant within a week after setting the plants in the ground. Most tomato growers in the South use stakes about 4 or 5 feet in length and 1 inch or more square, which are split from heart pine. If these stakes are cared for they will last several years. The stakes should be sharpened at one end and a wooden mallet is best for driving them. The plants are trimmed to either one or two stems, usually one (fig. 11). It is necessary to go over the plot once a week and pinch out the side shoots which appear in the axils of the leaves (where the leaf joins the main stem) and to tie them to the stakes so they will not bend over or break. Any soft twine or narrow strips of cloth will answer for tying, although there is a special tomato twine on the market which is best adapted to the work. By pruning and tying in this manner the plants can be more easily and thoroughly sprayed, they are easier to cultivate, and the fruit will ripen earlier and be more uniform in size and shape than if the plants were allowed to spread upon the ground. Pruning and tying is recommended in all cases.

GATHERING AND MARKETING TOMATOES.

Tomatoes are at their best when red ripe all over and before they begin to soften. If they are to be hauled a long distance, or shipped to a distant market, they should be gathered before they are fully ripe. For early tomatoes it is very essential that they should be



FIG. 11.—Pruning (on left) and tying tomato plant to stake (on right).

carefully selected and marketed in small packages, in order to bring the highest price. Extra large or rough fruits are not desirable. The medium size, about $2\frac{1}{2}$ to 3 inches in diameter, smooth and perfect fruits, are the ones that will bring the price. If there are a large number of small fruits they should be graded out and sold as culls or used at home. For express or freight shipment, the regular tomato crate holding six $\frac{1}{2}$ -peck pans or baskets, is a good type of package. For local marketing, $\frac{1}{2}$ -peck and 1-peck splint baskets make an

attractive package. In gathering the tomatoes from the vines, remove all fruits that are ripe enough and place them upon a grading table consisting of a frame work with a bottom of bagging or other coarse cloth that will not bruise the tomatoes. When a few baskets have been gathered, sort out the prime market size and pack them uniformly in the baskets ready for sale. Handle the fruits carefully so that they do not become bruised or burst. For extra fancy trade the tomatoes may be wrapped in soft tissue paper cut 9 inches square, the fold of the paper being placed underneath the fruit in the package so as to give the surface an attractive appearance. The use of wrapping paper, however, is not necessary for ordinary marketing, but only for long distance shipments.

CLEANING UP AFTER THE CROP.

Every club member should take pride in cleaning up their tenth-acre plot after the crop has all been gathered. The strings that hold the tomato vines to the stakes should be cut and the stakes gathered together in a neat pile or, if possible, placed under shelter ready for next year's use. The tomato vines should be cut off close to the ground and gathered in piles ready to be burned when they become thoroughly dry. If the vines are not diseased, it will be all right to plow them under, but as a general rule they are more or less diseased and it is better to burn them and in that way destroy whatever disease may be upon them. The soil can then be harrowed and sown to rye, crimson clover, or some other cover crop. Any green tomatoes that remain on the vines in the fall can be removed and spread on a shelf either in a shed or in a cellar, and many of them will ripen for home use. Those that will not ripen are often used for making relish, so that no part of the crop is lost.

GROWING BEANS IN THE CLUB GARDEN.

Beans are one of the most important food crops, and the bunch varieties are especially well adapted for planting in the club garden. Snap beans (sometimes called string beans) can be grown under the same general conditions as tomatoes. Pole beans and Lima beans require considerable space and a richer soil than for tomatoes. Stringless Green Pod and Round Pod Valentine are among the best varieties of green pod, bunch snap beans, and Curries Rust-proof Golden Wax is one of the leading wax pod varieties. Kentucky Wonder is the leading pole bean for the South. There are one or two varieties of Kidney beans grown in Mexico and in the Southern States for dry beans that give excellent results.

Beans should not be planted until the ground is fairly warm and all danger of frost is past. The bunch beans may be planted in rows 30 inches apart and 4 or 5 seeds in a hill, with the hills 12 inches apart in the row. The seed may be drilled in the row, but the crop is easier to hoe and cultivate if planted in hills. One quart of seed of the bunch or snap beans will plant 600 to 800 feet of row. Do not cover the seed too deeply, especially if there is plenty of moisture in the soil. One to two inches is about the proper depth, dependent upon the character and condition of the soil. However, in very sandy soil the seed should be planted deeper than in clay loam or

any heavy soil. If there should be a heavy rain before the beans come up the surface crust should be broken carefully with a steel rake, care being taken that the sprouting beans are not disturbed nor injured in the operation.

Snap beans will yield pods in from 7 to 9 weeks after planting, but their producing period is generally limited to not over 3 weeks. In order to have a continuous supply during the early part of the season, about three plantings at intervals of 3 weeks should be made. During the middle of the summer the weather becomes too hot for bunch snap beans, but the pole beans generally furnish a supply at this time. One or two plantings of snap beans should be made late in the summer for fall use.

Pole beans should be planted in hills 3 to 4 feet in each direction and 7 to 10 beans in a hill. The poles should be set before planting and the seeds stuck down by hand around the pole. After the beans come up they should be thinned to 4 or 5 in a hill. Small saplings or round poles cut in the woods and about $7\frac{1}{2}$ feet long make the best bean poles. The lower end should be sharpened and be set in the ground by first making a hole with an iron bar. Pole beans can be grown on wire fences or upon trellises formed of posts and wire, with strings for the beans to climb upon. The round poles from the woods will be found the most satisfactory as supports.

Bunch Lima and Pole Lima beans require a little more space than do the bunch and pole snap or string beans. Lima beans require a richer soil than do most of the other types of beans. In planting Lima beans always place the eye of the bean downward and do not cover more than 1 inch deep.

The bunch beans mature quickly and require frequent cultivation. The cultivator should be run through the rows at least once a week and then the hoe be drawn between the hills after cultivation. Never work beans when their foliage is wet with dew or rain.

GROWING OKRA IN THE CLUB GARDEN.

Anyone who is familiar with the methods followed in planting and cultivation of cotton will have no difficulty in growing okra. While okra has a very modest food value it is a desirable addition to the crops grown in our southern gardens and is especially desirable for canning with tomatoes for winter soup mixture. Perkins Mammoth, Tall Green, and Lady Finger are the leading varieties, and 1 ounce of seed will plant 100 feet of row. Cover the seed about $1\frac{1}{2}$ inches deep and thin the plants to 18 inches in the row. Okra requires rich soil and plenty of fertilizers to secure a quick and tender growth of the pods. By keeping the pods all cut from the plants they will continue to produce until fall. For further information on the culture and uses of okra, write to the department for a copy of a bulletin that gives all the details for handling the crop.